

## **The Effectiveness of Instructional Computer Games in Developing Vocabulary Learning**

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### **ABSTRACT**

The current research aimed at investigating the nature of teaching of vocabulary and all the aspects of vocabulary teaching. Furthermore, the research assessed the feasibility of computer games as an instructional means for developing vocabulary competence among the learners. The research made use of the descriptive and analytical method for attaining the research purpose. The research reviewed the literature available connecting the two researched variables trying to identify the relationship and effectiveness of instructional computer games in developing the EFL learners' vocabulary skills. The results attained demonstrated the effectiveness of instructional computer games in developing the EFL learners' vocabulary skills and pinpointed its effectiveness. More importantly, the study recommended that vocabulary learning is part and parcel of any successful learning.

**Keywords:** Vocabulary learning, Computer Games, Instruction, EFL learners.

## فاعلية الألعاب الكمبيوترية التعليمية في تنمية تعلم المفردات

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### مستخلص البحث

هدف البحث الحالي إلى التعرف على طبيعة تدريس المفردات وجميع جوانب تدريس المفردات لدى متعلمي اللغة الإنجليزية كلغة أجنبية، علاوة على ذلك ، عمد البحث إلى تقييم جدوى الألعاب الكمبيوترية كوسيلة تعليمية لتطوير كفاءة المفردات بين المتعلمين، ولقد استخدم البحث المنهج الوصفي التحليلي للوصول إلى نتائج البحث؛ حيث استعرض البحث الأدبيات المتوفرة التي تربط بين المتغيرين اللذين تم بحثهما في محاولة لتحديد العلاقة وفعالية ألعاب الكمبيوتر التعليمية في تطوير مهارات مفردات متعلمي اللغة الإنجليزية كلغة أجنبية، ولقد أظهرت النتائج التي توصل إليها البحث إلى فاعلية الألعاب الكمبيوترية التعليمية في تطوير مهارات مفردات متعلمي اللغة الإنجليزية كلغة أجنبية، كما أوصى البحث بضرورة التحقق من أن تعلم المفردات جزء لا يتجزأ من أي تعلم ناجح ولا بد أن يعطى الاهتمام الأمثل في عملية التعليم.

**الكلمات المفتاحية:** تعلم المفردات، الألعاب الكمبيوترية، التعليم، متعلمي اللغة الإنجليزية كلغة أجنبية.

## Introduction

Vocabularies are the building blocks of any language which are linked together via grammar to form the communication construction whether it is in a written form or a spoken one. As such, vocabulary teaching and learning is not a marginal activity in the language classroom but it is at the very heart of learning a language whether it is a native, a second or a foreign language.

Wilkins (1972) verified the significance of vocabulary in learning a foreign language as he stated that “without grammar, little can be conveyed, but without vocabulary, nothing can be conveyed” (p. 111). Consequently, vocabulary is the initial aspect of learning a language and especially foreign languages (Nation, 2001).

With this in mind, learning vocabulary assists language learners to acquire different language aspects and skills; for instance, grammar, writing, reading and speaking. Moreover, the comprehension of any component of the language depends mainly on the individual’s vocabulary knowledge. As such, the acquisition of considerable amount of vocabulary means that the learner has the ability to control the other aspects of language and develop the language as a whole (Hadi, 2017; Krashen & Terrel, 1983).

Added to that, controlling the vocabulary means that the learner has the ability to express himself/herself accurately and can interact with fully understanding. More than that, the possession of massive vocabulary store means that the individual has the capability of effectively interact with other people and avoid communication misunderstanding (Asmarani, 2015).

## Knowing a Word Components

One of the controversial questions among those working in the field of education is identifying what is meant by knowing a word. Therefore, there are different views concerning the meaning of knowing a word. Initially, Cameron (2001) pinpointed that knowing a word entails figuring out different aspects of the target word which can be summarized in the following points:

- 1) Accurate pronunciation of the target word taking into account all the phonetic aspects needed for producing the target word.
- 2) Accurately producing the word without spelling errors or confusing the word with another one.
- 3) Perceiving the meaning of the target word to be used accurately in the specified context.
- 4) Using the word in the accurate context which means fully control of the word usage.
- 5) Knowing the word part of speech to be able to make use of the word grammatically in a correct way.

On the other hand, Thornbury (2002) categorized the meaning of knowing the word into two main aspects summarized in 1) the form of the word (for instance, spelling) and 2) the meaning of the word (for example usage). Furthermore, he added that there are many other aspects of word that should be perceived by the learner to be able to say that he knows such word as follows:

- 1) Knowing the words which are collocating with the target word; in other words, every word in a language has different words which can go with as for example (abject poverty, dark night, according to, have a meal, etc....).
- 2) Knowing the connotation of the word as all words have connotations which may be positive or negative. For instance, the word (guest) has a positive connotation; however, the word (intruder) has a negative one. Consequently, the user must have a good knowledge of connotation to be able to use the vocabulary echoing with the target context.
- 3) Knowing the register is also another important feature of knowing a word. Every language has its register or degree of formality which must be taken into consideration when using such a language; thus, the learner should be aware of the word register to be able to select the appropriate word for the target register (for instance, classical, formal, informal, vulgar, taboo ...).

In conclusion, knowing a word means knowing different aspects of language related to such word. In addition, there is an agreement concerning the point that knowing vocabulary according to the previously mentioned factors is varied in degrees of each aspect (Nation, 2008).

## Learning Vocabulary Techniques

The literature of vocabulary learning revealed that there are different techniques of learning vocabulary, which are effective to enable the learner store the target vocabulary and recall it (Ellis, & Beaton, 1993; Wong, & Looi, 2010) as follows:

### **Repetition:**

One of the most widespread techniques of learning vocabulary which has been used by a number of educators over the history was repetition. It was pinpointed that such technique is significant when the target words are encountered many times by the learners.

### **Retrieval:**

Retrieval is another technique of learning vocabulary as the teacher encourages the students to make use of some words in meaningful contexts to be able to learn the usage of the new encountered words.

### **Imagining:**

Forming mental images of vocabulary is another technique of learning vocabulary as the teacher urges the students to form mental images that represents the target vocabulary.

## Vocabulary Teaching Trends:

Reviewing the literature related to vocabulary systematic instruction revealed that there are four dominant methods of teaching English as a second or foreign language. The place of vocabulary in these methods was varied according the goal of each method as follows (Coady & Huchin, 1997):

### **The Grammar Translation Method**

Grammar and translation is the first method of teaching which appeared in 1840 and was the dominant method until 1940. According to the grammar translation method vocabulary is delivered for the students by the teacher in the form of isolated vocabulary lists in the students' mother language. The teacher provided reading texts for the students to extract the target words and form lists of the new words.

### **The Direct Method**

The direct method was developed as a revolution against the grammar translation method. It emphasized the teaching of vocabulary using the target language. The method also paid the due attention to the accuracy of vocabulary pronunciation. More than that, the direct method made use of several techniques of presenting vocabulary such as:

- Realia
- Pictures
- Demos

### **The Audio-lingual Method**

The main interest of the audio-lingual method was to focus on dialogues and conversation with the target language; thus, vocabulary was not given the necessary attention among the other linguistic aspect as vocabulary which was mainly taught in context.

### **The Communicative Language Teaching**

The main target of the communicative approach was to develop the communicative competence among the learners; consequently, vocabulary was taught inductively within the context of the language use.

### **Vocabulary Presentation Techniques:**

The main skills of any language are four: listening, reading, writing and speaking. Teachers are used to presenting vocabulary for the learners using various techniques within the four skills (Awaluddin, 2013; Cameron, 2001; Thornbury, 2002) as follows:

#### **- Translating the target vocabulary**

One the most common methods of presenting the target vocabulary used by teachers who adopt the oldest method of teaching namely, the grammar translation method. It is considered the fastest technique of providing the meaning for the students; however, its drawback is that it is a teacher-centered technique and make the students passive during learning.

- **Illustrating the meaning of the target vocabulary**

Through this technique, the teacher can made use of some realia to make the students guess the meaning of the target vocabulary. It is considered more effective than the translation technique but it is suitable for young learners.

- **Guessing the meaning of the target vocabulary in context**

Vocabulary acquisition is done intentionally or incidentally. The literature of vocabulary acquisition provided considerable amount of evidence concerning the superiority of one over the other. With this mind, guessing the meaning in context is considered an incidental mode of vocabulary acquisition. The teacher can train the students to guess the meaning of the target vocabulary in context to sharpen their skills.

- **Defining the meaning of the target vocabulary**

Teacher may choose to provide definition for the target vocabulary in order to give their student a clear overview of the meaning taking into account the students' knowledge in terms of the target vocabulary used in the definition.

- **Delivering the meaning of the target vocabulary via body language**

Making use of body language to express the meaning of the target vocabulary or using the actions to depict the meaning of the target vocabulary enables the students to comprehend the meaning in context. Such use may also benefit young learners who could not figure out the meaning of the abstract vocabulary.

With this in mind, teaching vocabulary to the learners of English as a foreign language is a controversial issue since ages as the assessment of acquiring vocabulary depends on the learner's ability to use vocabulary in a productive context which is known as the active vocabulary knowledge.

### **Instructional Computer Games**

One of the most prominent challenges encountered by teachers and instructors in the teaching learning process of a foreign language is to create and maintain funny constructive environment for the students to feel that the learning process is a matter of fun taken into account achieving the intended instructional objectives (Derbouche, & Hamadouche, 2016).

Furthermore, Raphael (2010) pinpointed that constructing funny learning environment is an important criterion of the teaching learning process to allow maximum participation from teachers and students. It was believed that maintaining an atmosphere which contains all the elements of pleasure sustain the students to recall the intended vocabulary as well as utilizing such vocabulary in a meaningful context. Added to that, creating such environment is an important component for increasing the students' involvement and motivation to practice more.

Instructional computer game is a contemporary technique appeared with the advent of computer for increasing the learners' motivation and their interaction in the learning process combining the funny environment and the learning content. Instructional computer games were believed to be considerably effective for children as the edutainment content is focused in such games. More than that, several studies were conducted adopting instructional computer games in teaching different subjects and different aspects of language and such games effectiveness was verified. Another group of studies were conducted for specifically identify the effectiveness of such games in developing vocabulary acquisition and learning which is the main interest of the current study (Dehghanzadeh, et al., 2016).

### **The Advantages of Computer Games**

Samaldino, et al. (2014) and Cairncross and Mannion (2001) enumerated five advantages of utilizing the instructional computer games in vocabulary learning as follows:

#### **1) Making use of diverse media types**

Instructional computer games provide the learners with plethora of stimuli to attract the learner's attention and provide an interactive environment contains lots of prompts as videos, audios, graphics, diagrams, text, images and interactive components which has a significant effect on involving the learners in an interesting environment.

#### **2) Enhance learner's participation**

The format of the instructional computer games enables the learners to fully participate and interact within the learning environment provided. Some games provide cooperative environment for the learners to interact with each other.

### **3) Promoting individual differences**

One of the main advantages of instructional computer games is that they enable individualization as every learner can tackle the learning content according to his abilities. More than that, some instructional computer games are adaptable as the learning journey is tailored according to the learner and his abilities.

### **4) More flexibility than the traditional techniques**

The flexibility of the instructional computer games is clear in that such games give myriad alternatives and allow the learner to choose from them what is echoing with his interests and what makes him consciously involved in the learning situations.

### **5) Virtual reality and the experiences of different materials**

Some instructional computer games are based on virtual reality environments which enable complete involvement in the learning situation. On the other hand, some instructional computer games provide illustrations of the games.

### **6) Control of the learning situation**

With the many available choices for the learner in the learning situation through the instructional computer games, the learner can select the most interesting theme.

## **The Main Criteria of the Instructional Computer Games**

The literature of functionalizing technological means for education identified some criteria to be followed (Smaldino et al., 2014) as follows:

### **1) The design theory**

Any design must be based on a theory of learning in order to be in accordance with the nature of human development and learning. The literature of language learning made use of many theories as follows:

- Behaviorism
- Cognitivism
- Constructivism

## 2) Screen design

The screen is the interface which the learner encounters when he starts his first step in the learning journey. It is the gate through which the learner can develop and improve his skills in various aspects. The screen design is reflected clearly in the learners' interest to be involved in the learning situation and fully complete the journey.

### 1) Interactivity and feedback

The key merit of the instructional computer games is the interactivity as it not only involves the learner in the learning process, but it also provides navigation patterns to be followed by the learners. More than that, feedback is another important component which is taken into consideration in the development process of the computer games.

## 3) Forms of navigation

There are two forms of navigations when designing an instructional media such as the computer games; these forms are the net navigation and linear one. Such forms provide the learner with the most appropriate learning experience and the most relevant feedback taking into account the learner's main interests.

## 4) The game control

The effective instructional computer games give the learners different sorts of control; as the learner can choose the level of difficulty and the format of the screen, besides the type of exercise. The degree of control which is granted to the learners may be different from a category of learners to another according to the level of maturation, the degree of sophistication and the learners' characteristics.

## 5) Interface Colors

The design of the computer learning games must take into account the screen colors. Young learners prefer bright colors; however, advanced learners do not like bright colors and prefer the calm designs.

#### **6) Graphics and animations**

Graphics and animations are also significant which must be taken into consideration when designing an instructional computer game. Instructional computer games which utilized graphics and animations are proved to be more effective than those which use only texts.

#### **7) Sound effect**

Sounds are considered by some to be important determinant of the instructional computer game. Consequently, they should be impeded to enable the game to involve different learning channels; in addition to that, the learner should be given the control of the sound.

#### **8) Text**

The knowledge of most subjects which are based on the cognitive domain are based on text; consequently, texts used should be paid the due attention when developing the computer games.

### **Instructional Computer Games and Vocabulary Learning**

The instructional computer games are of crucial importance for developing vocabulary as teachers have been using instructional computer games to develop their learners' spelling and vocabulary learning skills. It is believed that using games in learning is very tricky, but it is a powerful means if it is functionalized accurately in the teaching learning process. In other words, games may help teachers to fully engage their students in a meaningful learning context. On the other hand, it may cost much time and effort and waste valuable time of the teaching learning process (Heinich, et al. 1982).

On the same line, many studies researching the effectiveness of the instructional computer games in developing vocabulary learning have confirmed that the instructional computer games are visible tools due to the myriad aspects of games in education (Nation, 2001; Claxton, 2008; Wolf, 2001; Sawyer & Smith, 2008). Yip and Kwan (2006) confirmed that utilizing instructional computer games in teaching vocabulary helped students to develop their attitudes towards learning.

Another study by Segers and Verhoeven (2003) was administered on a sample consisting of 67 pupils who studied a proposed content via computer games; the results showed that the participants have showed considerable development in their vocabulary learning because of the instructional computer games.

To sum up, many studies were conducted in the field of applied linguistics exploring the effectiveness of instructional computer games in developing vocabulary learning and showed significant development in the participants' knowledge of vocabulary (Marzano & Brown, 2007).

#### **Conclusions of the Study:**

- Learning vocabulary is an important component of learning a foreign language which must be given the due attention in the classroom.
- Teachers should pay the due attention to develop the students' receptive vocabulary knowledge (listening & reading) and the productive vocabulary one (speaking & writing).
- Instructional computer games are feasible tools for enabling the learners acquire vocabulary and functionalize them in a meaningful context.
- Instructional computer games are significantly effective in developing vocabulary especially among young learners.

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